Dickinson Bayou
WATERSHED PARTNERSHIP

August 24, 2011

Hughes Road Elementary School

Agenda

- How we got here
- Update on Bacteria TMDL
- Bacteria TMDL Implementation Plan
- Next Steps

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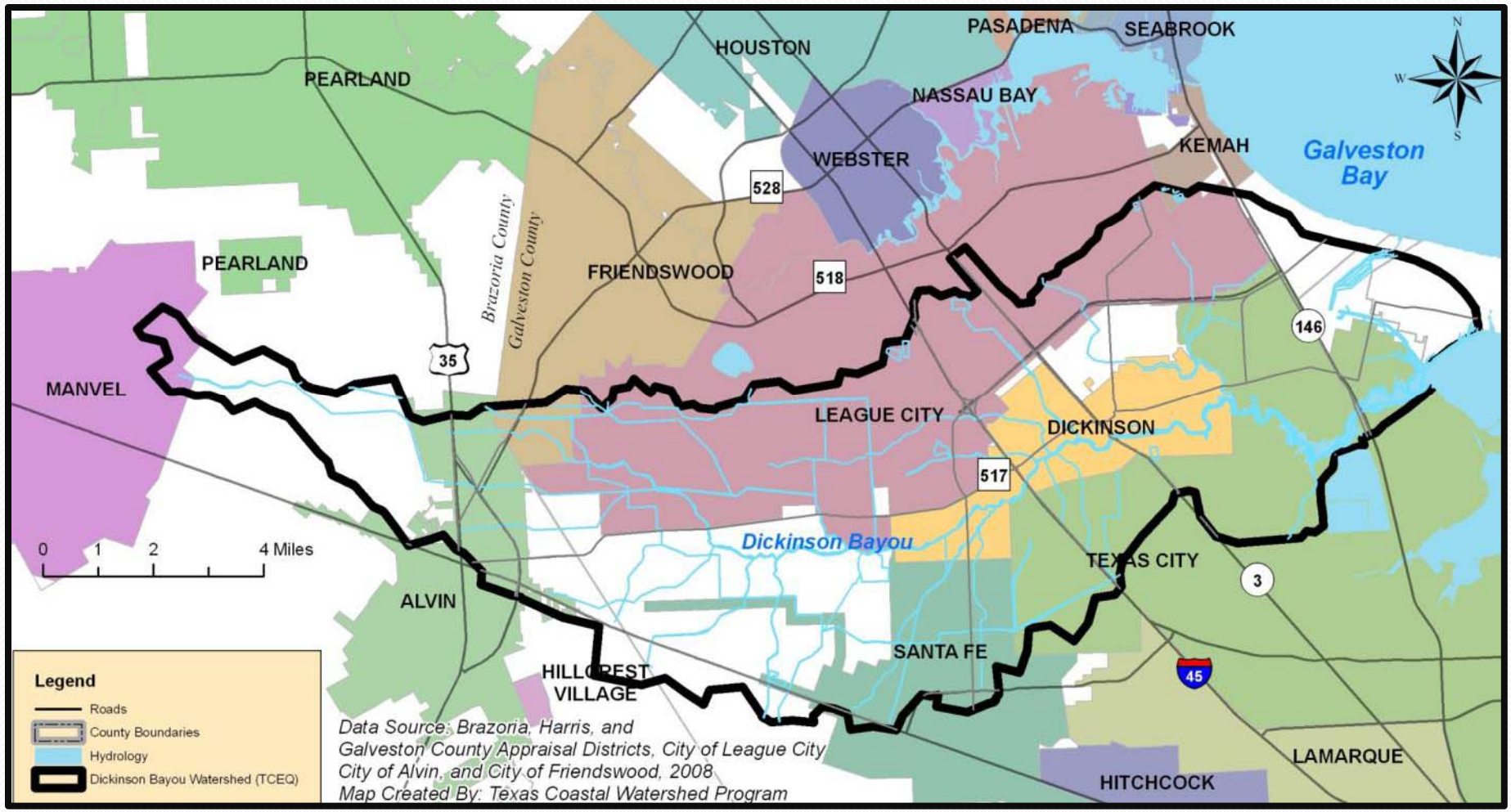
Dickinson Bayou Watershed



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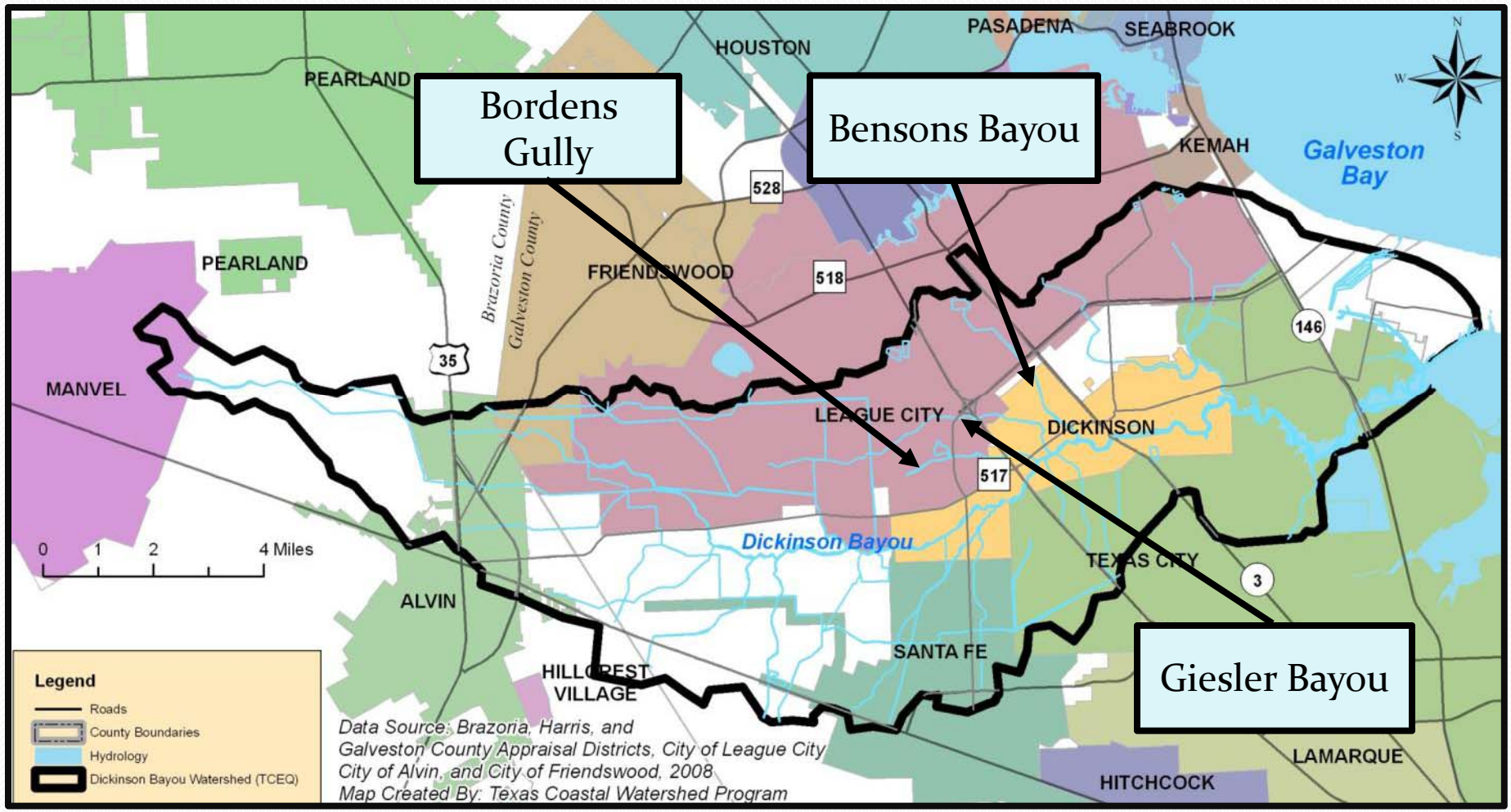
Bacteria TMDL

- Texas Commission on Environmental Quality
- The goal is to reduce bacteria concentrations to within acceptable risk levels for contact recreation
- Total Maximum Daily Load document characterizes the sources of bacteria in the watershed
- Dickinson Bayou and Three Tidal Tributaries
  - Bordens Gully
  - Bensons Bayou
  - Giesler Bayou

Dickinson Bayou and 3 Tidal Tributaries



Bacteria TMDL

- TMDL is ready for approval by TCEQ Commissioners and release for public comment
  - August 31 – Commissioners meeting
  - September 16 – published in TX register – public comment period begins
  - Late September/early October - TCEQ will hold a public meeting in the watershed to accept oral comments
  - October 17 – Public comment period ends

Bacteria TMDL

- Comment procedures will be:
  - Outlined in Public Register
  - Available on TCEQ TMDL project website

    http://www.tceq.texas.gov/waterquality/tmdl/80-dickinsonbayoubacteria.html
  - Linked to www.dickinsonbayou.org
- Both oral and written comments will be accepted
- Updates will be sent via the Dickinson Bayou Watershed Partnership Listserv

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What is an Implementation Plan?

Local Solution to a Local Problem

- Written plan outlining actions necessary to improve water quality based on an approved TMDL document
- Assigns responsibility for each portion of the plan
- I-Plans have a regulatory component enforceable by state, federal and local agencies responsible for managing natural resources
- Stakeholder driven

Why does Dickinson Bayou need an I-plan?

- Bayou does not meet bacteria standards for contact recreation
- Remedial actions are needed to improve the water quality
- I-Plans set measurable goals and designate responsibility

Other Local I-Plans

- Bacteria Implementation Group (BIG)
  - Coordinated by the Houston-Galveston Area Council
  - Buffalo Bayou, Whiteoak Bayou, Clear Creek, Houston Metro Area, Lake Houston
  - Began July 2008, draft plan currently available for review
- Upper Gulf Coast Oyster Waters
  - Coordinated by the Galveston Bay Foundation
  - Pieces of Galveston, Harris, Chambers counties
  - Began work April, 2010, draft expected later this year

Project Timeline

✓	**November 2010**	Dickinson Bayou Watershed Partnership Advisory Committee Meeting
✓	**December 2010**	Bacteria Workgroup Meeting – Entities who manage the resources
✓	**February 2011**	Dickinson Bayou Watershed Partnership Meeting
✓	**February 2011 – on going**	Workgroup Meetings (Animal Sources, On-Site Sewage Facilities, Wastewater Treatment Facilities)
✓	**May 2011 – on going**	Start drafting portions of the plan
✓	**July 2011**	Dickinson Bayou Watershed Partnership Open House
Tonight	**August 2011**	Dickinson Bayou Watershed Partnership Meeting
✓	**August 2011**	**Draft Implementation plan completed**
	Fall 2011-Spring 2012	Implementation plan comments and revisions and adoption of Implementation Plan by TCEQ

Workgroups

- On-Site Sewage Facilities (OSSF)
- Wastewater Treatment Facilities (WWTF)
- Animal Sources

OSSF

- Workgroup Chair
  - John Jacob, Texas AgriLife Extension Service
- Members:
  - Susie Blake, League City
  - Karen Carroll, Brazoria County Environmental Health
  - Bryan Eastham, TCEQ
  - Martin Etringer, Galveston County Health District
  - Lisa Marshall, Galveston Bay Foundation

WWTF

- Workgroup Chair
  - Susie Blake, League City
- Members
  - Darrell Hartwick, WCID #1
  - Hoi Heldt, resident
  - Kim Laird, TCEQ
  - Lisa Marshall, Galveston Bay Foundation
  - Angela McDowell, Galveston County Health District
  - Dawn Ryczek, Galveston County Health District

Animal Sources

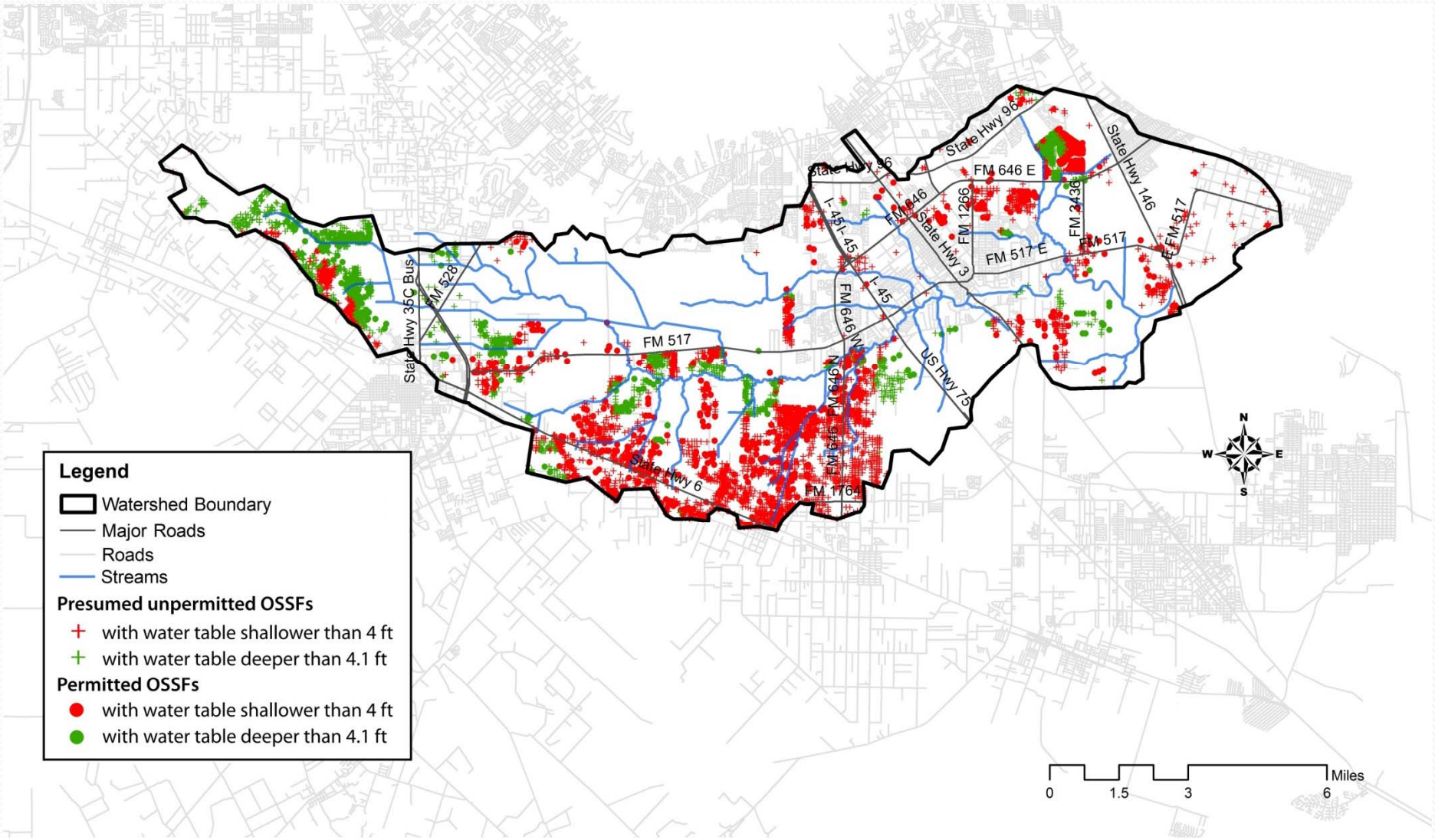
- Workgroup Chair
  - Phoenix Rogers, Texas AgriLife Extension Service
- Members
  - Linda Broach, TCEQ
  - Brian Koch, Texas State Soil and Water Conservation Board
  - Tim O'Connell, The Nature Conservancy
  - Dustin Roberts, Galveston County Health District

Management Measures

OSSF Management Measures

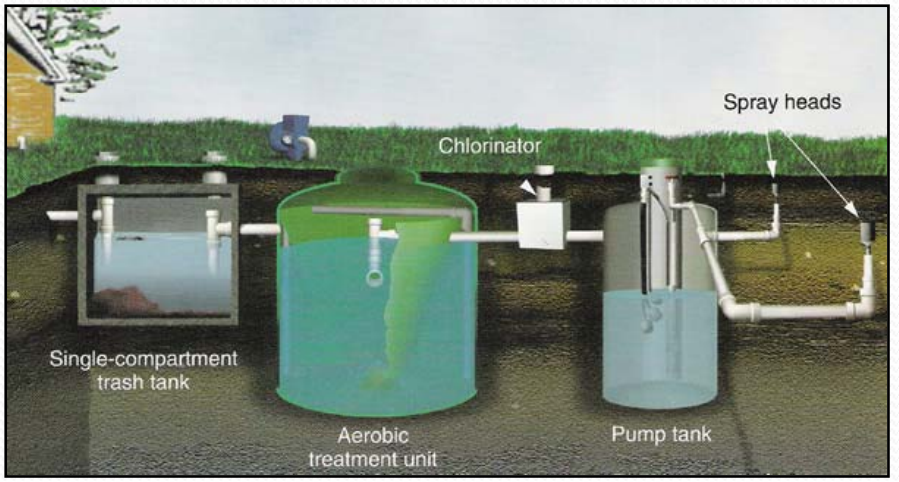
- Identify and rank target areas by need to upgrade systems and expand homeowner education
  - Create map identifying location of permitted and non-permitted OSSFs in the watershed and additional parameters necessary to adequately rank areas
  - Utilize map created to identify and rank target areas for system upgrades
  - Utilize map created to identify and rank target areas for OSSF owner education

Map of OSSFs in the Watershed



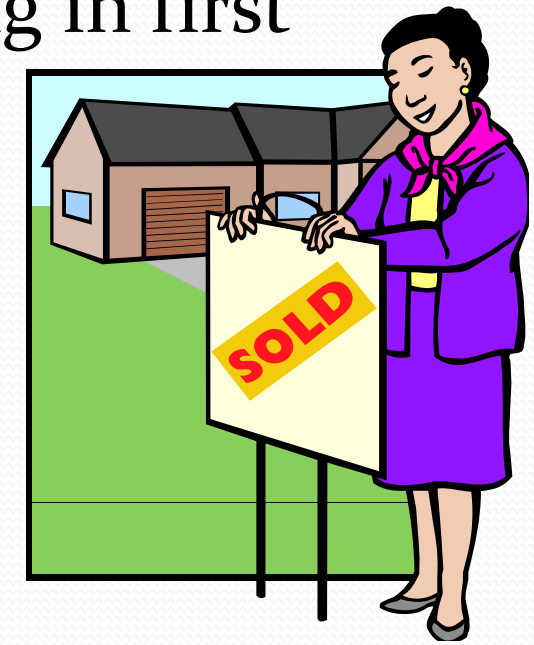
OSSF Management Measures

- Upgrade and/or fix identified failing systems
- Improve enforcement on failing systems
- Address maintenance of OSSFs
  - Homeowner education
  - Home buyer education
  - Real estate professional education



OSSF Management Measures

- Incorporate OSSF criteria into standards of practice for home sale inspection
- Target areas for intensive water quality sampling based upon mapping in first management measure



Understanding Bacteria Input

Medium

10,000,000,000 cfu

1×10^{10}

=

x 1,000

Large

Medium

1,000,000,000,000 cfu

1×10^{12}

OSSF Measures

Calculated Load = 1.73×10^{12} cfu/day

= 2 Medium

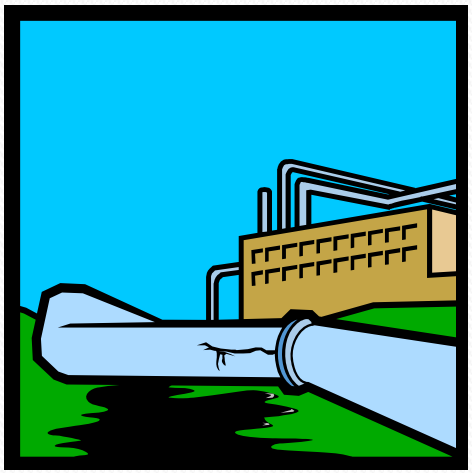
OSSF Measures

Calculated Load = 1.73×10^{12} cfu/day
= 2 Medium

Projected Load Reduction = 6.9×10^{11} cfu/day
= 0.7 Medium

WWTF Management Measures

- Increase compliance and enforcement by TCEQ
- Upgrade Plants
- Consider regionalization of discharge effluent (WWTFs and OSSFs), especially new
- Develop and implement a Sanitary Sewer Overflow Initiative plan/program for individual Sanitary Sewer Overflows



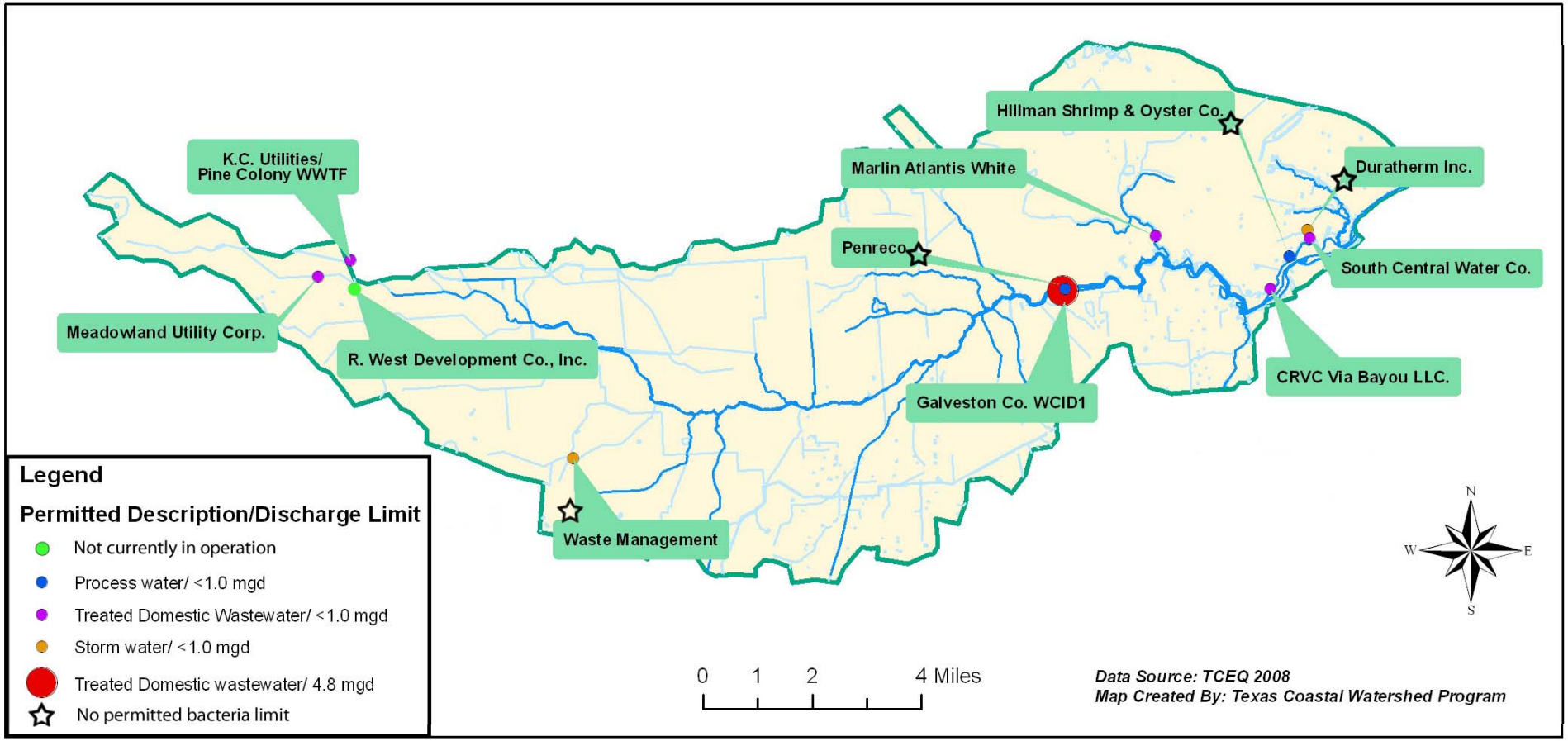
WWTF Management Measures

- Address Fats, Roots, Oils and Grease (FROG)
- Encourage appropriate mechanisms to maintain function at lift stations
- Improve reporting requirements for sanitary sewer overflows (SSOs)

WWTF Management Measures

- Restructure penalties for Sanitary Sewer System and WWTF violations
- Impose stricter bacteria limits and stricter enforcement measures for WWTF effluent
  - *E. coli* (fresh water) change from 126 to 63
  - *Enterococci* (tidal) from 35 to 18

WWTFs in the Watershed



WWTF Measures

Calculated Load = 1.05×10^{10} cfu/day
= 1 Medium

WWTF Measures

Calculated Load = 1.05×10^{10} cfu/day
= 1 Medium

Projected Load Reduction = 7.24×10^{9} cfu/day
= 0.7 Medium

Animal Sources Management Measures

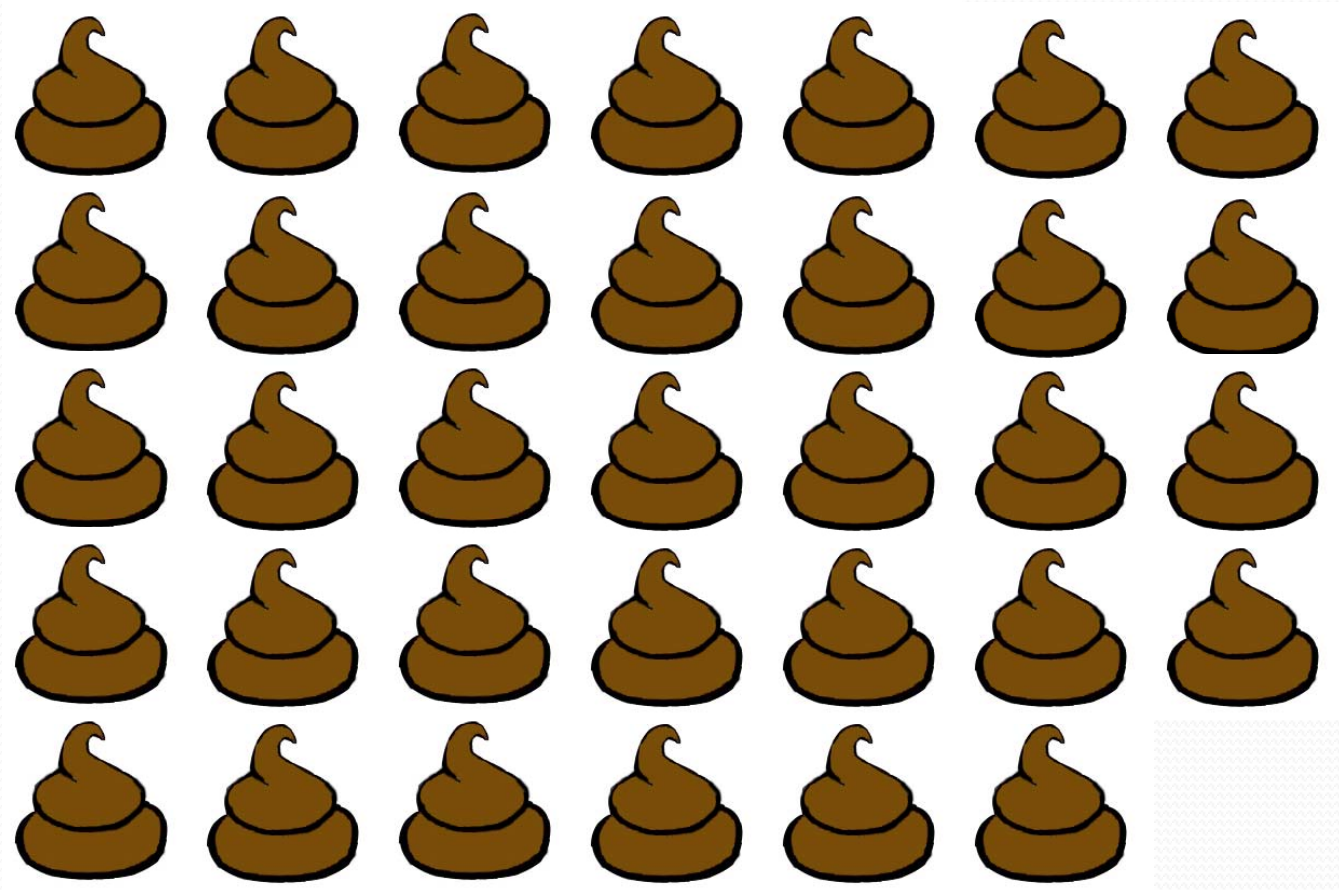
- Promote increased participation in existing conservation programs
- Promote the reduction of feral hog populations
- Expand pet owner education efforts
- Install pet waste stations in parks and public areas
- Improve HOA bylaws and ordinances for pet waste control

Animal Sources Management Measures

- Increase awareness, development and enforcement of pet waste control ordinances
- Promote best management practices (BMPs) for managing water quality for lands with large groups of animals not covered by other management measures such as a wildlife park, petting zoo or other animal feeding operation

Animal Sources Measures

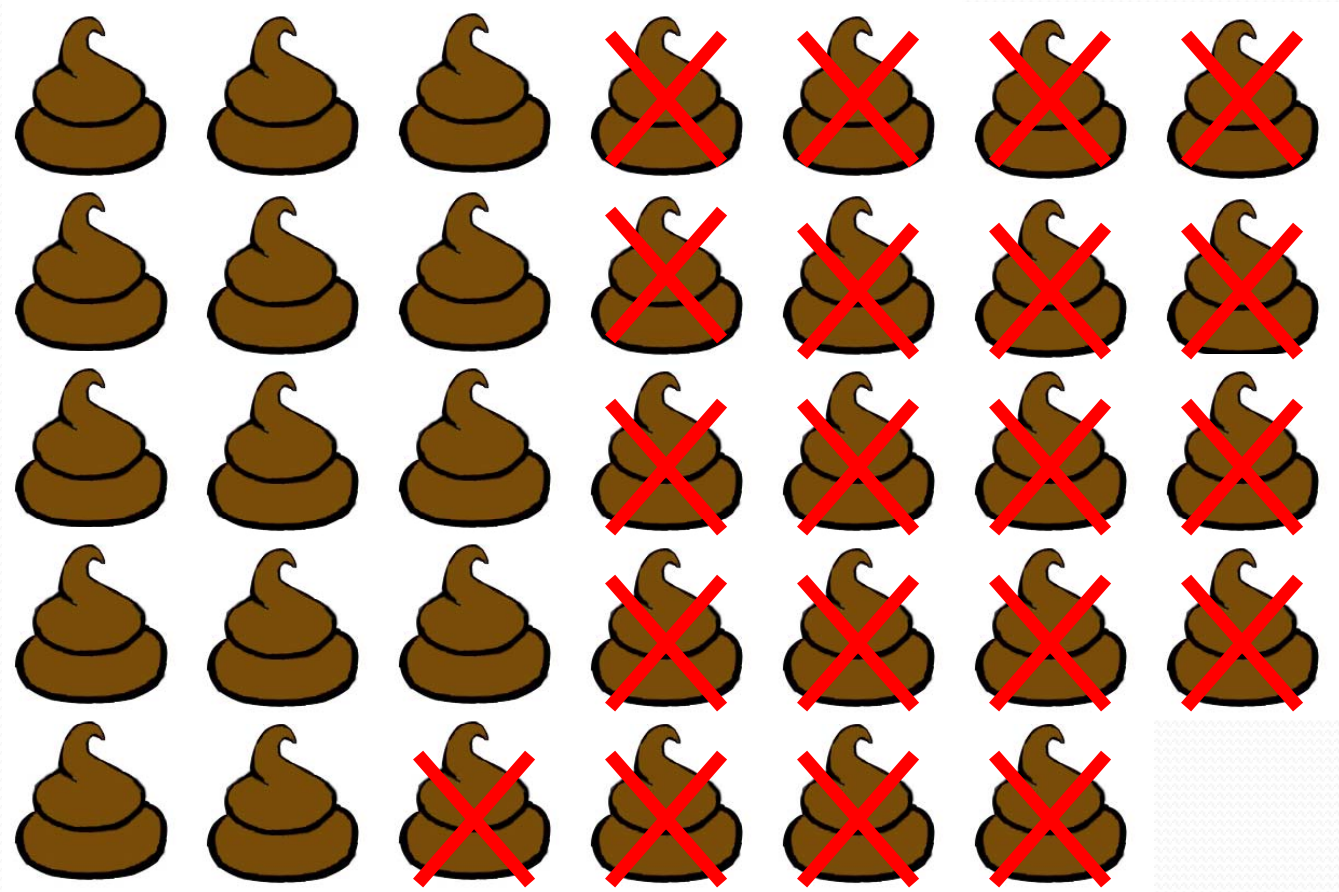
Calculated Load = 3.37×10^{13} cfu/day = 33 Large



Animal Sources Measures

Calculated Load = 3.37×10^{13} cfu/day = 33 Large

Projected Load Reduction = 1.9×10^{13} cfu/day = 20 Large



Additional Management Measures

- Restore and repair riparian zones
- Preserve and restore natural wetlands
- Construct treatment wetlands
- Provide demonstrations of and encourage installation of stormwater best management practices including rain gardens, bioswales and rain water harvesting

Additional Measures

Calculated Load = 0 cfu/day

Additional Measures

Calculated Load = 0 cfu/day

Projected Load Reduction = 1.75×10^{10} cfu/day
= 1.75 Medium

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Next Steps

- Public Comments and revisions of Implementation Plan
- Continued workgroup meetings
  - OSSF – Plan revisions, prioritization using map
  - WWTF – Plan revisions, begin outreach to WWTFs
  - Animal Sources – Plan revisions, begin outreach to landowners

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